

**WHAT IS CLAIMED IS:**

1       1.           A method comprising:  
2       in response to a request to perform a set of operations on a plurality of logical volumes,  
3           identifying a first storage region of a plurality of storage regions to allocate for a first  
4           operation of the set of operations on a first logical volume of the plurality of  
5           logical volumes; and  
6           determining whether a second operation of the set of operations can be performed on  
7           a second logical volume of the plurality of logical volumes using a subset of  
8           the plurality of storage regions, wherein  
9           the subset excludes the first storage region.

1       2.           The method of claim 1 further comprising:  
2       if the second operation cannot be performed using the subset of the plurality of storage  
3       regions,  
4       identifying a third storage region of the plurality of storage regions to allocate for the  
5       first operation, and  
6       determining whether the second operation can be performed using a second subset of  
7       the plurality of storage regions, wherein  
8       the second subset excludes the third storage region.

1       3.           The method of claim 2 further comprising:  
2       if the first storage region is allocated for the first operation on the first logical volume,  
3       de-allocating the first storage region, and  
4       including the first storage region in the second subset prior to determining whether the  
5       second operation can be performed.

1       4.           The method of claim 2 further comprising:  
2       identifying a respective set of rules to configure each respective logical volume of the  
3       plurality of logical volumes prior to identifying the first storage region, wherein  
4       the respective set of rules for each respective logical volume is used to identify a  
5       respective storage region to allocate for the respective logical volume.

1       5.               The method of claim 4 wherein  
2       the determining whether the second operation can be performed comprises  
3       examining a second respective set of rules for the second logical volume.

1       6.               The method of claim 2 further comprising:  
2       determining a respective storage region to allocate for each respective operation of the set of  
3       operations by  
4       determining whether a remaining operation of the set of operations can be performed  
5       using an unallocated subset of the plurality of storage regions, wherein  
6       the remaining operation excludes the respective operation,  
7       the unallocated subset excludes the respective storage region, and  
8       the unallocated subset excludes an allocated subset of the plurality of storage  
9       regions, wherein  
10       each storage region in the allocated subset is allocated to one of the set  
11       of operations.

1       7.               The method of claim 2 wherein  
2       each operation of the set of operations is one type of operation.

1       8.               The method of claim 2 wherein  
2       a first operation of the set of operations is a first type of operation,  
3       a second operation of the set of operations is a second type of operation, and  
4       the first type and the second type are different.

1       9.               The method of claim 2 wherein  
2       the first storage region conforms to a first intent of the first logical volume.

1       10.              The method of claim 9 wherein  
2       the first intent comprises a first rule used to configure the first storage region to provide the  
3       first logical volume.

1       11.              The method of claim 2 further comprising:  
2       performing the first operation on the first logical volume using the first storage region.

1 12. The method of claim 2 wherein  
2 one operation of the set of operations is one of the following:  
3 creating the first logical volume;  
4 growing the second logical volume; and  
5 adding a mirror to a third logical volume of the plurality of logical volumes.

1 13. A medium for storing computer executable instructions, wherein a method is  
2 performed in response to executing the instructions, the method comprising:  
3 in response to a request to perform a set of operations on a plurality of logical volumes,  
4 identifying a first storage region of a plurality of storage regions to allocate for a first  
5 operation of the set of operations on a first logical volume of the plurality of logical  
6 volumes; and  
7 determining whether a second operation of the set of operations can be performed on a  
8 second logical volume of the plurality of logical volumes using a subset of the  
9 plurality of storage regions, wherein the subset excludes the first storage region.

1 14. The memory medium of claim 13 wherein the method further comprises:  
2 if the second operation cannot be performed using the subset of the plurality of storage  
3 regions,  
4 identifying a third storage region of the plurality of storage regions to allocate for the first  
5 operation, and  
6 determining whether the second operation can be performed using a second subset of the  
7 plurality of storage regions, wherein  
8 the second subset excludes the third storage region.

1 15. The memory medium of claim 14 wherein the method further comprises:  
2 if the first storage region is allocated for the first operation on the first logical volume,  
3 de-allocating the first storage region, and  
4 including the first storage region in the second subset prior to determining whether the  
5 second operation can be performed.

1 16. The memory medium of claim 14 wherein the method further comprises:

identifying a respective set of rules to configure each respective logical volume of the plurality of logical volumes prior to identifying the first storage region, wherein the respective set of rules for each respective logical volume is used to identify a respective storage region to allocate for the respective logical volume.

17. The memory medium of claim 16 wherein the determining whether the second operation can be performed comprises examining a second respective set of rules for the second logical volume.

18. The memory medium of claim 14 wherein the method further comprises: determining a respective storage region to allocate for each respective operation of the set of operations by determining whether a remaining operation of the set of operations can be performed using an unallocated subset of the plurality of storage regions, wherein the remaining operation excludes the respective operation, the unallocated subset excludes the respective storage region, and the unallocated subset excludes an allocated subset of the plurality of storage regions, wherein each storage region in the allocated subset is allocated to one of the set of operations.

19. The memory medium of claim 14 wherein each operation of the set of operations is one type of operation.

20. The memory medium of claim 14 wherein a first operation of the set of operations is a first type of operation, a second operation of the set of operations is a second type of operation, and the first type and the second type are different.

21. The memory medium of claim 14 wherein the first storage region conforms to a first intent of the first logical volume.

22. The memory medium of claim 21 wherein the first intent comprises a first rule used to configure the first storage region to provide the first logical volume.

1 23. The memory medium of claim 13 wherein the method further comprises:  
2 performing the first operation on the first logical volume using the first storage region.

1 24. The memory medium of claim 13 wherein  
2 one operation of the set of operations is one of the following:  
3 creating the first logical volume;  
4 growing the second logical volume; and  
5 adding a mirror to a third logical volume of the plurality of logical volumes.

1 25. A memory medium that stores instructions executable by a computer system,  
2 wherein the computer system implements a method in response to executing the instructions,  
3 the method comprising:  
4 receiving a request to create first and second logical volumes, wherein the first and second  
5 logical volumes are required to have first and second storage structures,  
6 respectively, and first and second storage quantities, respectively;  
7 selecting a first collection of physical memory regions;  
8 allocating the first collection of physical memory regions to create the first and second logical  
9 volumes;  
10 determining whether the first and second logical volumes have the first and second storage  
11 quantities, respectively, and the first and second storage structures, respectively;  
12 if the first and second logical volumes do not have the first and second storage quantities,  
13 respectively, and the first and second storage structures, respectively, then select  
14 a second collection of physical memory regions, wherein the second collection  
15 is different from the first collection.

1 26. The computer readable medium of claim 25 wherein the method further  
2 comprises:  
3 allocating the second collection of physical memory regions to create new first and second  
4 logical volumes;  
5 determining whether the new first and second logical volumes have the first and second  
6 storage quantities, respectively, and the first and second storage structures,  
7 respectively.